



# DEEPWATER UPDATE

BY SCOTT R. GOURLEY



Opposite, top left: An artist's conception of the Deepwater Program's Maritime Security Cutter, Large. Opposite, top right: The CASA CN235-300M is a fixed-wing transport and surveillance aircraft that will be used to perform a wide range of surveillance and logistics-support missions. Opposite, bottom: An artist's rendition of a Deepwater Program Maritime Patrol Coastal vessel design concept. This ship has been proposed as the first in a series of 150-foot fast patrol vessels that will eventually replace the service's aging fleet of 110-foot Island-class cutters.

**S**peaking before the U.S. House of Representatives Subcommittee on Coast Guard and Maritime Transportation on April 28, 2004, Vice Adm. Thomas J. Barrett, vice commandant of the Coast Guard, highlighted the Integrated Deepwater System (IDS) and its importance to the recapitalization and transformation of the Coast Guard.

IDS, also known as "Deepwater," focuses on the recapitalization of the Coast Guard's entire fleet of offshore assets, including: three new classes of cutters and their associated small boats; a new fixed-wing manned aircraft fleet; a combination of new and upgraded helicopters; both cutter-based and land-based unmanned air vehicles; C4ISR (command, control, communications, and computers, intelligence, surveillance and reconnaissance) systems and sensors; and integrated logistics support (ILS).

### 21st Century Responsibilities

"Recapitalizing aging and technologically obsolete assets is the Coast Guard's top capital priority," Barrett told Congress in late April. "The performance of our men and women in addressing national priorities – in home waters and overseas – serves as a compelling reminder why the Deepwater program is so important to the Coast Guard's future ability to sustain operational excellence in all of its military, multi-mission, and maritime responsibilities.

"Although the men and women of the Coast Guard are long accustomed to doing more with less, it is our collective duty to properly equip those at the tip of the spear with the tools needed to accomplish their mission. The Integrated Deepwater System is essential to allow the Coast Guard to meet our current and emerging operational requirements," he added.

The vice commandant's sentiments are loudly echoed by Rear Adm. Patrick M. Stillman, USCG, Integrated Deepwater System (IDS) program executive officer.

Noting that "The Coast Guard's core mandates call for the protection of U.S. citizens, interests, and friends wherever and whenever at risk; it calls for the safeguarding of maritime sovereignty and to ensure homeland security," Stillman recently

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stressed that "The Integrated Deepwater System program is vital to the Coast Guard's ability to continue to perform its traditional non-homeland security missions as well as its homeland security missions."

Mindful that the Coast Guard has experienced "storm warnings" as the result of the legacy fleet's falling readiness and growing maintenance costs, Deepwater supporters in both the House of Representatives and the Senate have called for the program to be accelerated and completed in between 10 to 15 years. This view was backed up by an independent assessment completed by the respected RAND Corporation in April.





Above: The USCGC *Matagorda* (WPB 1303) was the first of the upgraded, 123-foot Island-Class cutters to return to the Coast Guard fleet as part of the Deepwater program. During its overhaul, the *Matagorda's* length was extended 13 feet (for a total of 123 feet) through the addition of a new stern launch ramp. Other modifications included a refurbishment of the hull with new plating and structural replacement (900 square feet of hull plating were replaced on *Matagorda*); incorporation of a new superstructure with a larger pilot house featuring a 360-degree bridge; installation of a new C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance) suite; renovated hull sections and interior spaces (including quality-of-life and dual-gender crew capability improvements); and the installation of a new, digitized system for engine control, alarm, and monitoring functions.

Right: "The Deepwater Program will give the Coast Guard the ability to identify and interdict possible threats to our people and homelands as far from our shores as possible," says Coast Guard Rear Adm. Patrick M. Stillman, Integrated Deepwater System (IDS) program executive officer. "Deepwater will be a key enabler in the Coast Guard's contribution in the effort of meeting the challenge of developing a fully integrated border and port security system."



Simply stated, Deepwater will provide the Coast Guard with the necessary capabilities to support its broadly expanded mandate and authority over America's national maritime security and defense interests well into the 21st century.

"Effective homeland security is built upon awareness, prevention, response, and consequence management," Stillman

explained. "The primary objective continues to be protection that depends upon awareness and interdiction capabilities. The Deepwater Program will give the Coast Guard the ability to identify and interdict possible threats to our people and homelands as far from our shores as possible. Deepwater will be a key enabler in the Coast Guard's contribution in the effort of



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From left, EADS CASA President Francisco Fernandez Sainz, Lockheed Martin Maritime Systems and Sensors President Fred Moosally, and U.S. Coast Guard Rear Adm. Patrick M. Stillman, program executive officer of the Integrated Deepwater System Program, signed a contract in February 2004 calling for the procurement of two CN-235 Medium Range Surveillance Maritime Patrol Aircraft for the U.S. Coast Guard.

meeting the challenge of developing a fully integrated border and port security system. These multi-mission assets will be critical in meeting the needs of the Coast Guard's Homeland Security mission which, in turn, supports the national strategy for Homeland Defense."

In addition to supporting homeland defense/national security requirements, Deepwater will also allow the Coast Guard to sustain operational excellence in its multi-mission and maritime responsibilities.

As an example, during his recent Congressional testimony, Barrett pointed to the U.S. Coast Guard Cutter *Storis*. *Storis*, which has become something of a "poster child" for the Deepwater Program, began service with the Coast Guard 62 years ago.

"Cutters like the *Storis*, [which] began its service during World War II, have a proud but very long history," Barrett said. "We cannot rely upon assets commissioned in 1942 to fulfill the maritime safety and security needs of today."

Somewhat broader but equally direct, Stillman subsequently observed that "The Deepwater Program is important to the Coast Guard's future ability to sustain operational excellence in all of its military, multi-mission, and maritime responsibilities. For a military service long accustomed to attempting to do more with less, the Coast Guard is now seeing a downward spiral in its operational readiness at precisely the worst time for the nation's maritime homeland security needs. Our aircraft and cut-

ters are aging, are technologically obsolete, and require replacement and modernization. The Deepwater Program will recapitalize and transform the Coast Guard."

As evident throughout the U.S. Department of Defense, the "transformation" of an entire organization or service is a daunting, albeit necessary, task. The need to modernize legacy assets progressively during that transformation process significantly increases the transformation challenges. Yet the Coast Guard faces this transfiguration in the midst of a post-September 11 environment of dramatically expanded expectations and requirements.

The numbers behind the expanded expectations and requirements are impressive. For example, each year, approximately 9 million containers enter our 361 seaports, representing more than 95 percent of overseas trade, and more than 8,000 foreign-flag vessels make 50,000 port calls. In addition, nearly 200 million passengers on cruise ships and ferries visit these ports with their critical infrastructures.

Obviously, dealing with these numbers in a post-September 11 world presents the Coast Guard with significant challenges. And one key aspect of meeting those challenges will be the ability to achieve Maritime Domain Awareness (MDA). MDA is comprehensive and accurate information, intelligence, surveillance, and reconnaissance of all vessels, cargo, and people extending well beyond traditional maritime boundaries and their respective activities that





A Coast Guard HH-65 Dolphin helicopter from Air Station Houston conducts a port-security flight over a petrochemical plant in Houston in March 2003. The HH-65 is to become the Multimission Cutter Helicopter.

could affect America's security, safety, economy, or environment.

"The Deepwater Program is crucial to the Coast Guard increasing MDA through C4ISR upgrades of air and surface assets and shore facilities to include an interoperable Common Operating Picture (COP)," Stillman explained. "Deepwater's network-centric and interoperable C4ISR architecture will provide the means for Coast Guard operational commanders to develop better situational awareness, increase maritime domain awareness, and enhance security operations. These new assets, together with command centers ashore, will share a common operating picture allowing the Coast Guard to manage risk wisely and employ our assets far more effectively than is possible today."

#### Acquisition Strategy

The Deepwater contract, the largest acquisition in the history of the Coast Guard, was awarded in late June 2002 to Integrated Coast Guard Systems (ICGS), a joint venture between Lockheed Martin and Northrop Grumman. With the potential to extend up to 30 years, the contract award had an approximate value of \$17 billion.

"The Deepwater acquisition strategy is different and unique from previous Coast Guard strategies in that this acquisition is not a one-for-one replacement of a specific class of cutters or aircraft," Stillman explained. "Rather, this innovative strategy focuses on the system-of-systems approach, focusing on capabilities rather than assets. The Coast Guard partners with the system integrator, the Integrated Coast Guard Systems [ICGS], to provide an integrated system of surface, air, C4ISR, and logistics."

Stressing Deepwater's "integrated approach to upgrading existing legacy assets while transitioning to a newer and more capable system of platforms," Stillman emphasized the program as being "network-centric vice platform-centric."

"Connectivity and interoperability are built into this system-of-systems solution," he added.

The Deepwater Program has reached a number of significant milestones within that system of systems over the past year. Significant awards and events have taken place during this busy year within the surface domain, aviation, C4ISR, and ILS arenas.

#### Surface Milestones

In terms of the surface domain, for example, April 2003 saw the award of two contracts to Northrop Grumman for the detail design and purchase of long-lead materials for delivery of the first Maritime Security Cutter, Large, one of three new cutter classes within Deepwater.

To ensure alignment with Homeland Security mission requirements, the Coast Guard has approved a number of recent design changes for the NSC, including: adding chemical, biological, and radiological defense and detection that will allow the cutter to operate in a contaminated area for 36 hours; adding an intelligence-collection capability that includes additional electronics equipment, space, weight, and electrical capacity; changing to an interoperable Navy weapons suite; enlarging the flight deck to expand operability with Department of Homeland Security and additional DoD helicopters and improving the helicopter handling system; and increasing the berthing for the additional crew related to these changes.

Initial Maritime Security Cutter, Large fabrication will begin this summer at Northrop Grumman Ingalls Operations shipyard in Pascagoula, Miss., with the keel-laying scheduled for December 2004. Delivery of the first Maritime Security Cutter, Large to the fleet is currently projected for late 2006.

In terms of enhancing near-term capabilities, the Coast Guard accepted delivery of the modernized 123-foot USCGC *Matagorda* on March 5, 2004, at Bollinger Shipyards in Lockport, La., and the CGC *Metompkin* mid-May 2004. The Coast Guard has contracted for eight of its 110-foot Island-class cutters to be converted to a more capable 123-foot maritime patrol boat with four being converted during this fiscal year [see accompanying article].

In addition to the conversion of some 110-foot Island-class cutters, and owing to the continued deterioration of the materiel condition of those workhorse vessels, the Coast Guard has also decided to look at the feasibility of accelerating the design and development of the Maritime Patrol Coastal Vessel to replace many of the existing 110s. As of this writing, the Deepwater Program is conducting a business-case analysis to determine the appropriate number of 123-foot conversions to complete prior to the transition to the Maritime Patrol Coastal. A decision on the total number to be converted will be made later this year.

Finally, Deepwater's surface domain milestones include receipt of the first new 7-meter Short Range Prosecutor (SRP) boat. The SRP will add to the 123-foot patrol boat's capabilities and also will be deployable on all new classes of cutters. Delivery of the first SRP coincided with *Matagorda's* delivery in March 2004.

#### Aviation Milestones

Deepwater's aviation arena focuses on selected upgrade of legacy fixed-wing aircraft and helicopters and the progressive introduction of new and more capable platforms and unmanned aerial vehicles (UAVs).

Recent aviation activities have included the January 2004 Coast Guard direction to ICGS to take immediate action to re-engine the HH-65 Dolphin helicopter fleet to ensure safe and reliable operations. Operational flight restrictions have been instituted to maintain safety. Turbomeca was selected for the engine replacement with re-engining expected to take approximately 24 months. The first new engine was installed as part of this effort in May. In the long-term, the Deepwater plan is still to convert the HH-65 to the Multimission Cutter Helicopter (MCH).

In February 2004, Lockheed Martin and EADS CASA signed a contract to formalize the latter company's participation in Deepwater. The initial contract is for the procurement of two CN-235-300M medium-range surveillance maritime patrol aircraft (MPA).

The CASA CN235-300M is a transport and surveillance, fixed-wing aircraft that will be used to perform a wide range of surveillance and logistics support missions including search-and-rescue missions, law and treaty enforcement (including illegal drug interdiction), marine environmental protection, military readiness, and International Ice Patrol missions, as well as cargo and personnel transport.

The Coast Guard MPA-unique airframe configuration items will include observer bubble windows and a flare launcher. Mission equipment modularity is further enhanced through the use of a pallet for sensor workstations.

Delivery of the first two MPA is slated for mid-2006, with Coast Guard modifications to be completed by late 2006 or early 2007.

The Coast Guard also recently awarded a contract in 2003 to ICGS for eight MH-68 Stingray leased helicopters for assignment to Helicopter Interdiction Tactical Squadron Ten (HITRON). Manned with aviation gunners and armed with machine guns, the MH-68s significantly expand Coast Guard intercept capabilities.

Along with the aviation milestones for manned platforms, 2003 saw a contract award to Bell Helicopter, Textron Inc., to commence concept and preliminary design work for Eagle Eye,



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its tilt-rotor, vertical take-off and landing (VTOL) unmanned aerial vehicle (VUAV).

The primary role of the VUAV system is for surveillance, detection, classification, and identification (SDCI) of targets of interest (TOI). The Eagle Eye will significantly improve operational capabilities and extend major cutter surveillance capability, thereby increasing MDA, by allowing the Coast Guard to extend the surveillance, classification, and identification capability. The VUAV will be used for maritime homeland security, search and rescue missions, enforcement of laws and treaties including illegal drug interdiction, marine environmental protection, and military preparedness.

The Eagle Eye VUAV successfully completed its preliminary design review (PDR) in January 2004. Current schedules project developmental testing running through mid-2007, shifting to operational testing aboard the NSC in September 2007 with Initial Operational Capability (IOC) in April 2008.

#### C4ISR Milestones

As noted earlier, Deepwater's C4ISR upgrades are critical to achieving an interoperable Common Operating Picture and resultant Maritime Domain Awareness. Recent C4ISR activities



Image courtesy of Integrated Coast Guard Systems

Under a 2003 contract, Bell Helicopter, Textron Inc., will commence concept and preliminary design work for its Eagle Eye tilt-rotor, vertical take-off and landing (VTOL) unmanned aerial vehicle (VUAV) for the U.S. Coast Guard. The VUAV will be used for maritime homeland security, search and rescue missions, enforcement of laws and treaties, and military preparedness.

included the 2003 installation of the first in a series of enhancements and communication-systems upgrades for 270-foot, medium-endurance legacy cutters.

"As the first cutter to receive this upgrade, *Northland* now boasts improved performance within existing communications systems and has additional access to a variety of intelligence and data sources previously unavailable," Stillman said.

"With the ability to rapidly share tactical and administrative information, the Coast Guard's medium-endurance cutters will be more effective in the planning and prosecution of Coast Guard missions. The improvements enable fusion of asset sensor data with intelligence and operational data into a Common Operating Picture that will be shared with other government agencies to achieve MDA."

Deepwater C4ISR upgrades for all 270-foot medium-endurance cutters are continuing and should be completed in August 2004.

The Deepwater Program's system for C4ISR also has been adjusted to be responsive to the emergent requirements of our operational commanders.

According to Stillman, "In response to a request from our Pacific Area Commander in March 2004, Deepwater's planned C4ISR upgrades were accelerated on the cutters *Munro* and *Rush* to support upcoming out-of-hemisphere deployments. The upgrade provided each cutter with access to the Department of Defense's SIPRNET [Secure Internet Protocol Routing Network]

and a classified local area network. Concurrent with these command-and-control upgrades, Deepwater's C4ISR upgrade was completed at the Communications Area Master Station Pacific [CAMSPAC] facility at Point Reyes, Calif. The first shore-based communications upgrade under the Integrated Deepwater System was completed in September 2003 at Communications Area Master Station Atlantic [CAMSLANT]."

Additional complementary C4ISR enhancements are also being incorporated through the 110- to 123-foot Island-class conversion process.

Most recently, in April 2004, Lockheed Martin opened its new Maritime Domain Awareness Center in Moorestown, N.J. The high-tech facility is designed to allow more efficient systems integration and cost-effective Deepwater C4ISR development. When combined with the synergies of other centers, the new facility promises to provide an unmatched capability to conduct surface system integration and interoperability testing across the full range of Deepwater systems.

#### ILS Milestones

As the final domain arena within Deepwater, ILS will support the transformation of operational capabilities by improving the Coast Guard's ability to provide totally integrated logistics support over the entire Deepwater system and for all of its platforms. ILS places logisticians at the heart of the Deepwater acquisition process by ensuring platforms will be designed to be





The U.S. Coast Guard Cutter *Northland*, seen at left here in January 2003 docked with the Cutter *Tampa*, was the first Coast Guard cutter to receive the initial phase of communications systems upgrades for 270-foot medium-endurance cutters as part of the Integrated Deepwater System (IDS).

reliable, maintainable, supportable, and affordable – and with optimum crewing levels.

#### Something Old / Something New

Noting that the Deepwater requirements had been in place prior to the attacks of September 11, Stillman said, “As a result of the 9/11 terrorist attacks, the demand for Coast Guard resources has continued to expand and has impacted the immediate needs and long-term capabilities required of the Deepwater system.”

Meeting that combination of both immediate and long-term needs is evident in parallel paths for new system acquisition – as with the Maritime Security Cutters – coincident with legacy system modernization – as with the 110-foot Island-class conversions.

“Unlike past acquisitions, this acquisition and its system performance requirements must be viewed in their entirety,” Stillman said. “The Coast Guard’s challenge is to ensure the design of all Deepwater surface and air assets linking with modern C4ISR systems and being supported by an integrated logistics system be compatible and interoperable. At the same time, we must ensure we maximize operational effectiveness

and minimize total ownership cost, giving the American taxpayers the best-value solution.”

Emphasizing that the Coast Guard has never worked with a systems integrator on an acquisition the size of Deepwater, he stressed the importance of the public-private partnership between the Coast Guard and ICGS to continuing overall program success.

As might be expected, that successful partnership was also highlighted by Barrett in his April 2004 Congressional testimony.

“We have embarked on a unique partnership with industry aimed at nothing less than recapitalizing and transforming today’s Coast Guard so that it may sustain its operational excellence into the future,” Barrett concluded. “We have adjusted the acquisition program to respond to growing high-priority operational requirements, confronted and surmounted numerous technical challenges, controlled cost, and are engaged in the ongoing process of improving performance in all of Deepwater’s product lines and processes. We are intent on the achievement of stewardship through performance measures and are committed to full and open accountability. We are determined to keep the Deepwater Program on a steady course of successful execution.”